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Application No. / Patent No. 98 932 436.3 - 2115 / 0998539 / 01	Ref. OPP S 365	Date 03.05.2005
Proprietor Rhodia Limited		

**Interlocutory decision in Opposition proceedings (Articles 102(3) and 106(3) EPC)**

The Opposition Division - at the oral proceedings dated 01.03.2005 - has decided:

**Account being taken of the amendments made by the patent proprietor during the opposition proceedings, the patent and the invention to which it relates are found to meet the requirements of the Convention.**

The reasons for the decision are enclosed.

Documents for the maintenance of the patent as amended:

**Description, Pages**

1, 2, 3, 3a, 3b, 4, 5, 6      filed during Oral proceedings on 01.03.2005

**Claims, Numbers**

1-9      filed during Oral proceedings on 01.03.2005

**Comments**

Description and claims according to the Auxiliary Request 2.

**Possibility of appeal**

This decision is open to separate appeal according to Article 106(3) EPC. Attention is drawn to the attached text of Articles 106 to 108 EPC.

K75



Date 03.05.2005

Sheet 2

Application No.: 98 932 436.3

**Opposition Division:**

**Chairman:**  
**2nd Examiner:**  
**1st Examiner:**

Contet, F  
Lanz, S  
olde Scheper, B



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Enclosure(s):     19 page(s) reasons for the decision (Form 2916)  
                         Wording of Articles 106 - 108 (Form 2019)  
                         Documents relating to the amended text  
                         Main Request and Auxiliary Requests 1-2

to EPO postal service: 28.04.05



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## FACTS AND SUBMISSIONS

- 1 The European Patent specification EP-B-0 998 539, which is based upon European Patent Application 98932436.3, which is based upon the International Application PCT/GB98/02079 having the International Publication Number WO 99/03947, was filed on 15.07.1998 by Rhodia Limited, claiming the priority of 15.07.1997 (GB 9714880).
- 2 The grant of said patent specification was published on 09.10.2002 in Bulletin 2002/41.
- 3 The title of said patent specification is "Refrigerant compositions".
- 4 A notice of opposition was filed on 08.07.2003 by Solvay S.A.
- 5 During the proceedings the following documents/evidence was filed:
  - D1: N.A. Roberts; "Determination of the performance, leak scenario, flammability and oil return characteristics of novel R22 replacement"; Proceedings of the 1998 International Refrigeration Conference at Purdue; E.A. Groll and J.E. Braun editors; July 14-17, 1998
  - D2: N.A. Roberts and S.F. Pearson; "High efficiency R22 replacement (ISCEON 59, a mixture of R125, R134a and isobutane)"; US 1996 Pap. 1996 Int. Compressor Eng. Conf., Purdue; July 23-26, 1996
  - D3: EP 0 779 352 A1
  - D4: D. Butler; "R.22 drop-in a success at BRE"; Refrigeration and Air Conditioning, September 1994, p 49-50
  - D5: "Fluorocarbon azeotropes"; Research disclosure 16265, October 1977
  - D6: "Refrigerating compositions for heat pumps, refrigerators etc. comprises 4-5 carbon hydrocarbon(s) and pentafluoropentane (HCFC-125)"; abstract of JP01/139678
  - D7: "Actuating medium mixture for refrigerant containing lower hydrocarbon(s) and tetrafluoroethane (HCFC-134 or HCFC-134a)"; abstract of JP01/139675
  - D8: S.F. Pearson; "Uses of hydrocarbon refrigerants"; I.I.F.-I.I.R. Commissions B1,



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B2, E1 and E2- Aarhus (Denmark); 1996-3; pages 439-446

D9: E-mail reply from Herrick Conference to Felix Flohr dated 27 May 2003

D10: Internet citation: "Conference Organizing Committee",

<http://www.ecn.purdue.edu/Herrick/Events/organize-frame.htm>

D11: Internet citation: "Registration Information",

<http://www.ecn.purdue.edu/Herrick/Events/Registration.htm>

D12: ASHRAE Standard 34-2001, "Contents" and pages 7 and 13

Documents D1-D11 were filed by the opponent, document D12 by the proprietor. The documents D9-D12 were filed after the 9 month opposition period.

- 6 With the notice of opposition the opponent requested revocation of the patent in its entirety as well as conditional oral proceedings. The opposition was based on Art. 100(a), (b) and (c). It was argued that the patent-in-suit lacked novelty (Art. 54 EPC), inventive step (Art. 56 EPC), insufficiency of disclosure (Art. 83 EPC) and was extended beyond the original disclosure (Art. 123(2) EPC). Said notice of opposition was supported by documents D1-D8.
- 7 In his letter dated 08.04.2004 the proprietor requested rejection of the opposition and maintenance of the patent in unamended form as well as conditional oral proceedings. The proprietor filed counterarguments against the allegations filed by the opponent.
- 8 With the summons for oral proceedings dated 16.07.2004 the opposition division expressed a substantiated preliminary and non-binding opinion.
- 9 With the letter dated 23.12.2004 the opponent filed documents D9-D11 in support that D1 was available to the public on 14.07.1998.
- 10 With the letter dated 30.12.2004 the proprietor filed a new Main and six Auxiliary requests, document D12 and provided for further arguments.
- 11 With the letter dated 10.02.2005 the proprietor filed retyped copies of said Main and six Auxiliary requests.



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12 Oral proceedings were held on 01.03.2005 and both parties were present.

12.1 The opponent maintained his request for revocation of the patent in its entirety.

12.2 The proprietor requested maintenance of the patent based on the Main Request or Auxiliary Request 1, 2 or 3, all filed during the oral proceedings. Said Main Request as well as Auxiliary Requests 1 and 2, on which this decision is based, are annexed to this decision.

### GROUNDS FOR THE DECISION

- 1 The opposition is admissible since it complies with the provisions of Art. 99(1) and 100 EPC as well as Rules 1(1) and 55 EPC.
- 2 A decision can be taken since it is based upon grounds or evidence on which the parties concerned have had an opportunity to present their comments (Art. 113 EPC).
- 3 Nomenclature

R12	dichloro-difluoromethane CCl <sub>2</sub> F <sub>2</sub>
R22	chlorodifluoromethane CHClF <sub>2</sub>
R134a	1,1,1,2-tetrafluoroethane
R134	1,1,2,2-tetrafluoroethane
R152a	1,1-difluoroethane
R218	octafluoropropane
R227ea	1,1,1,2,3,3-heptafluoropropane
R227ca	1,1,1,2,2,3,3-heptafluoropropane
R600	n-butane
R600a	isobutane
R417a	R125 (46.6), R134a (50.0), R600 (3.4)

- 4 Main request



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4.1 The Main Request contains, apart from various other amendments, two complete new claims, i.e. claims 13 and 14. The opposition division could not establish any ground for opposition which would have occasioned the addition of said new claims as required by Rule 57a EPC. Upon being asked during the oral proceedings the proprietor could not provide for any substantiated grounds.

The addition of said new claims 13 and 14 violates therefore Rule 57a EPC.

4.2 Another amendment, which was questioned under Rule 57a EPC, was the feature "able to replace chlorodifluoromethane", which was inserted in the first sentence of claim 17. Said claim 17 was based on claim 16 as granted. In said claim 16 as granted, the feature "as a replacement for chlorodifluoromethane" occurs twice (see definitions of components (ii) and (iii)). The proprietor was of the opinion that the double occurrence of said feature "as a replacement for chlorodifluoromethane" was a mistake (double definition of the claimed use) in claim 16 as granted and that during correction of said mistake it must be possible to put said feature in a more prominent position in the claim.

The opposition division found the line of reasoning of the proprietor acceptable and came thus to the conclusion that said amendment can be accepted under Rule 88 EPC, even though it does apparently not comply with Rule 57a EPC. The opposition division is further of the opinion that the allowability of the amendment under Rule 88 EPC is not in contradiction with the decision T 0887/97 (see point 2.1 of the reasons for the decision and Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001, chapter III, A 1.5.4) since the situations are not comparable.

4.3 The opposition division decided that the Main Request must be rejected since it does not comply with Rule 57a EPC. Any further discussion of said Main Request is therefore not necessary.

## 5 Auxiliary Request 1

5.1 Auxiliary Request 1 contains 19 claims. Claim 7 as granted has been deleted and claim 15 (= claim 16 as granted) has been amended. Claims 1-14 and 16-19 are as



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granted, only their numbering and dependencies are amended, if applicable.

The proprietor stated during the discussions on allowability of the Auxiliary Request 1 in view of Art. 123(2) EPC, that he deletes claims 4, 5 and 6. It must be stressed however, that no paper copy has been filed during the oral proceedings containing the indicated amendments.

## 5.2 Rule 57a EPC

The opposition division came to the conclusion that Auxiliary Request 1 meets the requirements of Rule 57a EPC.

## 5.3 Claim 1 and Art. 123(2) EPC

In the notice of opposition the opponent stressed that claim 1 as granted violates Art. 123(2) EPC. The opposition division agrees that claim 1 violates Art. 123(2) EPC for the following reasons:

Claim 1 as originally filed reads (see WO 99/03947):

A refrigerant composition which comprises:

- (a) pentafluoroethane, octafluoropropane, trifluoromethoxydifluoromethane or hexafluoro-cyclopropane, or a mixture of two or more thereof, in an amount from 5 to 60% based on the weight of the composition,
- (b) pentafluoroethane, 1,1,1,2- or 1,1,2,2-tetrafluoroethane, 1,1-difluoroethane, trifluoromethoxypentafluoroethane, 1,1,1,2,3,3-heptafluoropropane or 1,1,1,2,2,3,3-heptafluoropropane, or a mixture of two or more thereof, in an amount from 30 to 94% by weight based on the weight of the composition and
- (c) an unsubstituted hydrocarbon of the formula  $C_nH_m$  in which  $n$  is at least 4 and  $m$  is at least  $2n-2$ , other than methyl propane, in an amount from 1 to 10% by weight based on the weight of the composition.

Claim 1 as granted (and thus according to Auxiliary Request 1) differs thereof in that:



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- 1\* Component (i) = component (b) is present in an amount of 30 to 50% by weight,
- 2\* Component (ii) = component (c) is present in an amount of 1 to 4% by weight.
- 3\* Component (iii) = component (a) "with the remainder, not being less than 5% and not exceeding 60% by weight based on the weight of the composition" replaces "in an amount from 5 to 60% based on the weight of the composition".
- 4\* The amounts of the components do no longer add up to 100%.

It may generally be noted that any amended claim complies with Art. 123(2) EPC only if (1) every amendment finds its origin in the application as filed, and (2) all combinations of these amendments are disclosed.

1\* Component (i):

The range 30 to 94 wt-% has been replaced by 30 to 50 wt-%. Page 3, lines 36-37 of the application as filed discloses the ranges 30 to 94 wt-%, 50 to 90 wt-% and 75 to 90 wt-%. Based on these disclosed ranges a skilled worker would expect that the most preferred or envisaged range would be near the high end of the broadest range, which is also supported by examples 4 and 5 (88 wt-% R134a). The amendment made is based upon the combination of two lower limits of two ranges near the low end of the broadest range, which is also supported by example 1. Thus, said amended range is considered as disclosed in the application as filed in combination with the cited compounds and is therefore allowable in agreement with the Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001, chapter III, A 3.3, paragraph 3.

2\* Component (ii):

The range 1 to 10 wt-% has been replaced by 1 to 4 wt-%. Page 3, lines 10-13 of the application as filed disclose the ranges 1 to 10 wt-%, 1 to 8 wt-%, 2 to 6 wt-%, 2 to 5 wt-%, 3 to 4 wt-% and the single point 3.5 wt-%. Based on these disclosed ranges a skilled worker would expect that the most preferred or envisaged range would be between 3 to 4 wt-%, which is also supported by the examples. It may additionally be noted, that the lower limit of the broadest range is combined with the upper limit of the most preferred range.

Thus, said amended range is a limitation of the original range (1 to 10 wt-%) and is disclosed in the application as filed in combination with the cited compounds and is



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therefore allowable as such.

**3\* Component (iii):**

It appears that the amendment encompasses only a rephrasing of the original feature and is therefore allowable as such.

**4\* Sum of all components:**

Claim 1 contains the following 3 ranges:

- (i) 30 to 50 wt-%
- (ii) 1 to 4 wt-%, and
- (iii) 5 to 60 wt-%.

It can directly be derived that there are several compositions which do not add up to 100%. For instance, a composition containing 30 wt-% (i) and 4 wt-% (ii) must contain 66 wt-% (iii), which is not possible since the range of (iii) is limited to 60 wt-%.  
Further, a composition containing 60 wt-% (iii) and 4 wt-% (ii) must contain 36 wt-% (i). A composition containing 50 wt-% (i) and 4 wt-% (ii) must contain 46 wt-% (iii).

This means that the factual feasible ranges are:

- (i) 36 to 50 wt-%
- (ii) 1 to 4 wt-%
- (iii) 46 to 60 wt-%

These ranges 36 to 50 wt-% and 46 to 60 wt-% are new ranges which are neither disclosed in the application as filed as such, nor in combination with all compounds cited under (i), (iii), nor in combination with item (ii).

The opposition division came therefore to the following conclusion:

Items 1\*, 2\* and 3\* are disclosed as such in the application as filed. Item 4\* is as such neither disclosed in the application as originally filed, nor the combination of said item 4\* with items 1\*, 2\*, 3\*, nor the combination of items 1\*, 2\* and 3\*. Claim 1 as granted (and thus according to Auxiliary Request 1) violates therefore Art. 123(2) EPC.

#### 5.4 Claim 4 and Art. 123(2) EPC

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The opposition division is of the opinion that no detailed analysis of claim 4 in view of Art. 123(2) is necessary since:

- (a) the proprietor has explicitly stated that he deletes claim 4,
- (b) said claim 4 is also not present in Auxiliary Request 2,
- (c) Auxiliary Request 1 is not allowable in view of claim 1.

## 5.5 Claim 15 and Art. 123(2) EPC

In the notice of opposition the opponent stressed that claim 15, i.e. claim 16 as granted, violates Art. 123(2) EPC. The opposition division agrees that claim 15 violates Art. 123(2) EPC for the following reasons:

Claim 15 was not present in the application as filed, but has been added during the examination phase of the patent-in-suit.

The basis for claim 15 was, according to the proprietor, claim 1 as filed in combination with the general disclosure at page 1. The range of 1-5 wt-% (component (ii)) is based upon the description (page 3, lines 10-12), and component (iii) has been restricted to encompass pentafluoroethane (R125) only by simply deleting the other possibilities.

The amendments are thus as follows:

- (a) amendment of component (ii)
- (b) amendment of component (iii)
- (c) creation of a use-claim based upon product claim 1
- (d) the combination of items (a), (b) and (c)

### (a) Amendment of component (ii):

The range 1 to 10 wt-% has been replaced by 1 to 5 wt-%. Page 3, lines 10-13 of the application as filed disclose the ranges 1 to 10 wt-%, 1 to 8 wt-%, 2 to 6 wt-%, 2 to 5 wt-%, 3 to 4 wt-% and the single point 3.5 wt-%. The lower limit of the broadest range is combined with the upper limit of a more preferred range.

Thus, said amended range is a limitation of the original range (1 to 10 wt-%) and is disclosed in the application as filed in combination with the cited compounds and is therefore allowable as such.



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(b) Amendment of component (iii):

The limitation of a list of components to one single component out of said list is in accordance with Art. 123(2) EPC.

(c) Creation of a use-claim based upon product claim 1

Page 1 of the application as filed (WO 99/03947) contains the general statement that "The present invention relates to refrigerant compositions, particularly for use as replacements in refrigeration equipment currently employing, or designed to employ, the refrigerants R12 and R22".

This statement seems to indicate that all refrigerant compositions disclosed in the application are suitable to replace R22 and thus seems to indicate that the combination of the compositions of claim 1 as originally filed with the stated use is disclosed.

Such conclusion is however not correct for the following reasons:

It is common knowledge in the technological field of refrigerants that R12 and R22 are used in different (refrigerant) applications (i.e. R12 and R22 exhibit different windows of operation) and are therefore not interchangeable. The opposition division is also not aware of the disclosure any composition exhibiting such thermodynamic properties, that it can be used to replace both R12 and R22.

It is also clear from the application as filed (see the Tables on page 6) that complete different compositions are used as replacements for R22 or for R12: 50 wt-% R134a, 4 wt-% R600 and 46 wt-% R125 as R22 replacement and 88 wt-% R134a, 3 wt-% R600 and 9 wt-% R218 as R12 replacement.

The application as filed is absolutely silent with respect to the selection of each component (i), (ii) and (iii) and in what amount ranges, so that the combination of compounds and amounts makes it suitable to replace R22.

Claim 1 as originally filed encompasses therefore two groups of refrigerant mixtures: one group of refrigerant mixtures useful to replace R12 and one group of refrigerant mixtures useful to replace R22 although the selections of the components and their amount ranges are not indicated.

Claim 15 defines "use, as refrigerant composition able to replace R22". This definition encompasses already a first selection: the selection to replace R22 and not R12. This



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first selection is now combined with the disclosure of claim 1 as filed. The skilled worker knows that there are boundaries in the selection of the components and amount ranges within the disclosure of claim 1. It goes without saying that said boundaries cannot be established since it is not disclosed, which is an Art. 84 EPC problem and not part of an opposition proceedings. Regardless this lack of information, it is absolutely clear that said fictive but mandatory boundaries are not disclosed in the application as filed and the creation of the use claim is a violation of Art. 123(2) EPC.

(d) the combination of items (a), (b) and (c)

The combination of items (a), (b) and (c) is also not disclosed in the application as filed.

The opposition division came therefore to the following conclusion:

Items (a) and (b) are disclosed as such in the application as filed. Item (c) is as such neither disclosed in the application as originally filed, nor the combination of said item (c) with items (a) and (b). Claim 15, i.e. amended claim 16 as granted, violates therefore Art. 123(2) EPC.

5.6 The opposition division decided that the Auxiliary Request 1 must be rejected since it does not comply with Art. 123(2) EPC. Any further discussion of said Auxiliary Request 1 is therefore not necessary.

## 6. Auxiliary Request 2

6.1 Auxiliary Request 2 contains 9 claims. Claims 2-7, 10-12 and 17-18 as granted have been deleted and claims 1 and 7 (= claim 16 as granted) have been amended. Claims 4-6 and 8-9 are as granted, only their numbering and dependencies are amended, if applicable.

## 6.2 Rule 57a EPC

The opposition division came to the conclusion that Auxiliary Request 2 meets the requirements of Rule 57a EPC.



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### 6.3 Claim 1 and Art. 123(2) EPC

Claim 1 has been restricted in view of claim 1 as originally filed in that:

- (a) component (i) is restricted to 50 wt-% R134a (1,1,1,2-tetrafluoroethane)
- (b) component (ii) is restricted to 1-4 wt-% n-butane (R600)
- (c) component (iii) is restricted to 5 to 60 wt-% pentafluoroethane
- (d) the sum of the components do not always add up to 100%

#### (a) restriction of component (i)

It is clear from the description as filed (see page 3, line 37 and example 1) that component (i) was envisaged as 50 wt-% R134a.

#### (b) component (ii):

Component (ii) is restricted to n-butane (R600) which is based upon claim 11 as originally filed and example 1.

The range 1 to 10 wt-% has been replaced by 1 to 4 wt-%. Page 3, lines 10-13 of the application as filed disclose the ranges 1 to 10 wt-%, 1 to 8 wt-%, 2 to 6 wt-%, 2 to 5 wt-%, 3 to 4 wt-% and the single point 3.5 wt-%. Based on these disclosed ranges a skilled worker would expect that the most preferred or envisaged range would be between 3 to 4 wt-%, which is also supported by example 1. It may additionally be noted that the lower limit of the broadest range is combined with the upper limit of the most preferred range.

Nevertheless, said amended range is a limitation of the original range (1 to 10 wt-%) and is disclosed in the application as filed in combination with R600 and is therefore allowable as such.

#### (c) Amendment of component (iii):

The limitation of a list of components to one single component out of said list is in accordance with Art. 123(2) EPC.

#### (d) Sum of all components:

Claim 1 contains the following 3 ranges:

- (i) 50 wt-% R134a
- (ii) 1 to 4 wt-% R600, and



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(iii) 5 to 60 wt-% R125.

All compositions mandatory require the presence of 50 wt-% R134a.

Thus, a composition containing 50 wt-% (I) and 1 wt-% (ii) must contain 49 wt-% (iii) and a composition containing 50 wt-% (I) and 4 wt-% (ii) must contain 46 wt-% (iii).

This means that the factual feasible ranges are:

- (i) 50 wt-% R134a
- (ii) 1 to 4 wt-% R600
- (iii) 46 to 49 wt-% R125

It is clear from the description, see example 1, that the composition 50 wt-% R134a, 4 wt-% R600 and 46 wt-% R125 is fully disclosed. If 50 wt-% R134a is taken as the first selection, and 1 to 4 wt-% R600 is considered fully disclosed, then upper limit of 49 wt-% R125 is direct consequence of the requirements of components (i) and (ii) and constitutes no additional selection. The factual range 46 to 49 wt-% R125 is thus fully disclosed.

The opposition division concludes therefore that claim 1 of Auxiliary Request 2 meets the requirements of Art. 123(2) EPC.

#### 6.4 Claim 7 and Art. 123(2) EPC

Claim 7 relates to the use of a very specific composition as R22 replacement. This situation is completely different from the situation as encompassed by claim 15 of Auxiliary Request 1 (see paragraph 5.5 above). The same questions must however be answered: is the use disclosed in combination with this specific composition?

The specific composition comprises:

- (i) 50 wt-% R134a
- (ii) 2 to 5 wt-% n-butane (R600)
- (iii) 5 to 60 wt-% R125.

This means that the factual composition comprises:

- (i) 50 wt-% R134a
- (ii) 2 to 5 wt-% n-butane (R600)
- (ii) 45 to 48 wt-% R125



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It is clear from the application as filed, especially the combination of page 1 of the description, example 1, the two uppermost tables at page 6 and claim 1, that the use of said composition was envisaged as R22 replacement. The use as R22 replacement is therefore fully disclosed.

Component (i) is fully disclosed (see paragraph 6.3 above).

#### Component (ii)

Component (ii) is restricted to n-butane (R600) which is based upon claim 11 as originally filed and example 1.

The range 2 to 5 wt-% is as such fully disclosed at page 3, lines 11-12. Said range 2 to 5 wt-% is thus not obtained by combining limits of different ranges.

#### Component (iii)

If 50 wt-% R134a is taken as the first selection, and 2 to 5 wt-% R600 is considered fully disclosed, then the range of 45 to 48 wt-% R125 is direct consequence of the requirements of components (i) and (ii) and constitutes no additional selection. The factual range 45 to 48 wt-% R125 is thus fully disclosed.

The opposition division concludes therefore that claim 7 of Auxiliary Request 2 meets the requirements of Art. 123(2) EPC.

#### 6.6 Art. 123(3) EPC

No objections under Art. 123(3) EPC were raised against the claims of Auxiliary Request 2. The opposition division concludes therefore that claims 1-9 of Auxiliary Request 2 meet the requirements of Art. 123(3) EPC.

#### 6.8 Art. 54 EPC in view of D1

In the notice of opposition novelty of the patent-in-suit was challenged in view of D1.

Document D1 is a copy of the proceedings of a refrigeration conference which was held on 14-17 July 1998 at the Purdue University, Indiana, USA. Said document D1



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discloses a mixture of 50 wt-% R134a, 3.5 wt-% R600 and 46.5 wt-% R125 as R22 replacement (see paragraphs 3 and 4 as well as the first entry in Table 1). This disclosure could be considered as novelty destroying for at least claims 1 and 7 of Auxiliary Request 2 if (1) the relevant date (i.e. publication date) was 14 July 1998, i.e. the day before the filing date of 15 July 1998 of the patent-in-suit, and (2) the claim for priority of the patent-in-suit, 15 July 1997, is not valid.

#### (1) Relevant date of D1

In the written proceedings the relevant date of D1 was questioned by the proprietor. The opponent filed documents D9-D11 which documents should proof that the proceedings were available to the public on 14 July 1998.

The opposition division came to the conclusion that it cannot be established on what date D1 became available to the public for the following reasons:

- (a) D9 is an e-mail exchange between Mr Flohr and "Herrick Conference". Although the e-mail of Mr Flohr is apparently directed to Ms Freeman, it is completely unclear who has written the answer, since said answer lacks a name, let alone being signed.
- (b) The question posed by Mr Flohr is open for interpretation and is therefore not concrete. The same can be said for the answer.  
There is no explicit statement which confirms that the proceedings were handed out to the public on 14 July 1998.
- (c) Documents D10 and D11 are recovered from the internet and are related to the 2004 conference. There is no indication whatsoever that the persons cited in D10 were also present in 1998 and that the registration information (D11) applies for 1998 as well.
- (d) Thus, there is no indication about who was there, what was handed out, when it was handed out, and to whom it was handed out.

#### (2) Priority claim of the patent-in-suit

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In the notice of opposition the validity of the priority claim of the patent-in-suit was challenged by the opponent. Since it was decided that the relevant date of D1 could not be established in view of the date of filing of the patent-in-suit, it was decided that the question whether Auxiliary Request 2 was entitled to the priority claim of 15 July 1997 is valid or not was no longer relevant.

The opposition division decided therefore that the subject matter of Auxiliary Request 2 is not anticipated by D1.

#### 6.9 Art. 54 EPC in view of D2

In the notice of opposition novelty of the patent-in-suit was challenged in view of D2.

Document D2 discloses refrigerant mixtures which can be considered as high efficiency R22 replacements (see summary). This document discloses possible blend components (Table 1), concrete blends (Tables 2 and 3) as well as experimental results (4.1 Experimental Results).

Document D2 does however not prejudice novelty of Auxiliary Request 2 for the following reasons:

- (1) D2 does not expressis verbis disclose a blend composition of R134a, R600 and R125.
- (2) The closest disclosure is the second entry in Table 3. From Table 3 and "4.1 Experimental Results" it is known that a blend composition consisting of 50 wt-% R134a, 4 wt-% R600a and 46 wt-% R125 was preferred.
- (3) It is clear from the introduction and especially Tables 1 and 2, that D2 discloses a mosaic of blend possibilities, which blends may comprise hydrocarbons (or not, see table 2, third entry), and may comprise 3 or 4 blend components. The opposition division is therefore of the opinion that selecting this specific example constitutes a first selection out of several possibilities.



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- (4) In order to arrive at the subject matter of Auxiliary Request 2, R600a must be replaced by R600. Since D2 lacks any further indications, said R600 must be selected from the list disclosed in Table 1. This selection constitutes a second selection.
- (5) Thus, the subject matter of Auxiliary Request 2 meets the requirements of Art. 54 EPC in view of D2, since multiple selections must be made in order to arrive at the subject matter of said Auxiliary Request 2.

#### 6.10 Art. 56 EPC

There was consensus amongst all parties that D2 is to be considered to represent the closest prior art.

Auxiliary Request 2 differs from D2 (see second entry in Table 3) in that R600a is replaced by R600.

The objective problem to be solved may be regarded as to provide for alternative refrigerant compositions useful to replace R22 having at least the same efficiency performance and reduced flammability upon leakage (see [0003]-[0005] of the patent-in-suit).

Said problem is solved by the distinguishing features for the following reasons:

- (1) Example 1 shows a mixture according to the claimed invention comprising 50 wt-% R134a, 4 wt-% R600 and 46 wt-% R125.

Example 2 shows a mixture according to D2 comprising 50 wt-% R134a, 4 wt-% R600a and 46 wt-% R125 and is therefore a true representation of said closest prior art. Said mixture is also indicated in D2 as "Isceon 59".

- (2) In paragraph [0017] and in the table at page 5 of the published patent-in-suit it is clearly disclosed that the mixture comprising R600 is not flammable whereas the mixture containing R600a is flammable, according to the test method ASTM



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E 681-85.

- (3) The second table at page 5 of the published patent-in-suit shows that the composition comprising R600 exhibits a higher Coefficient of Performance (CoP) than the composition comprising R600a over the whole temperature range of -15 °C to 5 °C.
- (4) It can also be derived from said table that the CoP of the R600 containing refrigerant is over the whole temperature range much closer to that of R22 than the CoP of the R600a containing refrigerant.
- (5) None of the available prior art documents contains an indication that by using R600 instead of R600a the flammability according to ASTM E 681-85 can be reduced, the CoP can be increased over the temperature range -15 °C to 5 °C and that the blend behaviour becomes more identical with R22 over said temperature range.
- (6) The opponent was not in the position, neither during the written part of the opposition proceedings nor during the oral proceedings, to provide for effective counterarguments.

**Document D2:**

It can be acknowledged that flammability (see page 2, 1st and 3rd paragraphs; past 3 last paragraph) and CoP (Figures 2B and 3B) are also acknowledged in D2. However, D2 does neither disclose any flammability criteria, nor any (certified) flammability test, nor that the flammability can be reduced by selecting one component over an other.

Even though the CoP of Isceon 59 (see 6.10(1) above) is compared with R22 under certain circumstances, there is no indication whatsoever that, under the conditions of the patent-in-suit, better performances are obtained with R600 instead of R600a.

**Document D3:**

It must be acknowledged that D3 relates to R12 drop-in substituents and is



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therefore not related to R22 replacements. D3 cites both R600 and R600a but fails to indicate any reference to their specific and relative performances or properties.

Document D4 is a general disclosure citing blends of R134a, R125 and hydrocarbons and fails to disclose any specific combinations or even R600.

Documents D5-D7 disclose binary compositions only.

Document D8 discloses general background art on the use of hydrocarbon refrigerants.

(7) Thus, the available prior art does not contain any hint or indication which would have enabled the skilled person to solve the problem underlying the application with the different features of the invention.

The opposition division came to the conclusion that the subject matter of claims 1-9 of Auxiliary Request 2 meets the requirements of Art. 56 EPC.

#### 6.11 Art. 100(b) and 83 EPC

The opposition division is of the opinion that there was no need to discuss the objection under Art. 100(b) and 83 EPC as formulated in the notice of opposition in view of Auxiliary Request 2. The opponent was in accordance therewith.

#### 6.12 Amended description of Auxiliary Request 2.

The amended description filed with Auxiliary Request 2 was discussed and 2 minor amendments on pages 3a and 4 were considered to be necessary.

The opponent stated that he had no further formal objections against the amended description.



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## DECISION

The opposition division decides to maintain the European Patent EP-B-0 998 539 as amended according to Auxiliary Request 2, filed during the oral proceedings of 01.03.2005, since the patent and the invention to which it relates meet the requirements of the Convention in accordance with Art. 102(3) EPC.